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EXAMINER

FULLER, RODNEY EVAN

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 05 30 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,885

Applicant(s)

LUCAS, WALTER A.

Examiner

Rodney E Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 and 28 is/are allowed.
- 6) ☒ Claim(s) 11-27 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 26 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Remarks

In response to applicant's Amendment, dated March 26, 2003, the examiner acknowledges the addition of claims 22-29. Claims 1-29 are pending.

The examiner acknowledges the corrections of the objections related to the Specification and Drawings set forth in the Office Action mailed September 27, 2002.

Regarding the 35 U.S.C. 102(e) rejection of claims 1-5, 7, 11, 17-21 as being anticipated by Elson, et al. (US 6,017,276), the applicant amended claim 1 to include the limitation wherein "a greater portion of the curved screen extending below the eye of the viewer than above."

Regarding claims 11, 17 and 19-21, the applicant makes the argument that "one cannot say that any specific manner of recording images is inherent in Elson et al.," and that Elson "does not disclose or suggest maintaining the axes of the recording camera and lens substantially horizontal, or matching of fields of view or viewing angles as claimed in claims 11, 17, 19-21."

The examiner has considered the applicant's arguments in light of the amended claims and withdraws the rejection of claims 1-5 and 7. Regarding claims 11, 17, 19-21, the examiner respectfully disagrees with the applicant's assertion. The examiner maintains that as an amusement ride or flight simulator, the invention requires a recording of an image, which would most typically maintain "the axes of the recording camera and lens substantially horizontal, or matching of fields of view or viewing angles." (See Figure 4 of U.S. Patent No. 4,752,065 incorporated into Elson as a description of various amusement applications and flight simulators.) Hence, the examiner maintains the rejection of claims 11 and 17-21.

Regarding the 35 U.S.C. 102(b) rejection of claims 1-4, 7-11, 17-21 as being anticipated by Hayashi (US 5,845,434), the applicant amended claim 1 to "state that the lens axis is offset from the film centerline in order to move the horizontal line without tilting the projector, and that the viewers are positioned below the projector." Regarding claims 11, 17-21, the applicant argues "that these claims include elements relating to the recording of the images in defined ways, and Hayashi is not directed to recording." The applicant further argues that Hayashi does not disclose "maintaining the axis of the recording camera and lens substantially horizontal, or matching of fields of view or viewing angles as claimed in claims 11, 17-21." The examiner has considered the applicant's arguments in light of the amended claims and withdraws the rejection of claims 1-4 and 7-10. Regarding claims 11 and 17-21, as above, the examiner maintains that as an amusement ride or flight simulator, the invention requires a recording of an image, which would most typically maintain "the axes of the recording camera and lens substantially horizontal, or matching of fields of view or viewing angles." Hence, the examiner maintains the rejection of claims 11 and 17-21.

Regarding the 35 U.S.C. 103(a) rejection of claims 6 and 12-16 as being unpatentable over Hayashi (US 5,845,434) in view of Heilig (US 3,469,837), the applicant makes the argument "it is impermissible to simply to engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill in the gaps." In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of

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ordinary skill at the time at the time the invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the examiner maintains that one of ordinary skill in the art would have been motivated to modify Hayashi (US 5,845,434) in view of Heilig (US 3,469,837) as described below. Thus, the examiner has considered the applicant's arguments and maintains the rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 11, 17-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Elson, et al. (US 6,017,276).

Elson (US 6,017,276) discloses all the structure set forth in the claims. Regarding claims 11, 17, 19-21, Elson (US 6,017,276) discloses "...an image projector (Fig. 1a, ref.# 3); the image includes a horizon; the projector having a centerline of projection; a lens on the projector having an axial centerline to the centerline of the projector; an

audience viewing station (Fig. 1a, ref.# 2) for one or more viewers of the projected image; the audience viewing location having a viewing location; the projector is located at a position away from the viewing location (in Figure 1a the projector #3 is above the seats #2); the centerline of projection and the axial centerline of the projector are substantially horizontal (in Figure 1a, the projector #3 is substantially horizontal); and the centerline of the lens is positioned relative to the centerline of projection sufficient to place the horizon on the curved screen at approximately the eye level of the viewer positioned at the viewing location (in Figure 1a, the horizon on the screen at approximately where reference # 4 is indicated is at eye level of the viewer at the approximate location of ref.# 10)."

Regarding claim 18, Elson (US 6,017,276) discloses "...wherein the curved surface has a side with a positive radius of curvature, the side with a positive curvature positioned toward the projector." (Fig. 1a, ref.#s 3, 4)

3. Claims 11, 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi (US 5,845,434).

Hayashi (US 5,845,434) discloses all the structure set forth in the claims.

Regarding claims 11, 17, 19-21, Hayashi (US 5,845,434) discloses "...an image projector (Fig. 2, ref.# 14); the image includes a horizon; the projector having a centerline of projection; a lens on the projector having an axial centerline to the centerline of the projector; an audience viewing station (Fig. 2, ref.# 9) for one or more viewers of the projected image; the audience viewing location having a viewing location; the projector

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is located at a position away from the viewing location (in Figure 2, the projector #14 is above and below the seats #16); the centerline of projection and the axial centerline of the projector are substantially horizontal (in Figure 2, the projector #14 is substantially horizontal); and the centerline of the lens is positioned relative to the centerline of projection sufficient to place the horizon on the curved screen at approximately the eye level of the viewer positioned at the viewing location (in Figure 12, the horizon on the screen at approximately at eye level of the viewer at the approximate location of ref.# 9a)."

Regarding claim 18. Hayashi (US 5,845,434) discloses "...wherein the curved surface has a side with a positive radius of curvature, the side with a positive curvature positioned toward the projector." (Fig. 2, ref.#s 3, 14)

4. Claims 22-27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Dykes (US 3,98,532).

Regarding claims 22-25 and 29. Dykes discloses "displaying the recorded scene on the interior of a curved surface (Fig. 1, ref.# 40) using a projection lens (Fig. 1, ref.# 28, 30, 32), the projection lens being positioned above the viewer (Fig. 1, ref.# 36); the longitudinal axis of the projection lens being substantially horizontal (Fig. 1, ref.# 30); the longitudinal axis of the projection lens being positioned downward relative to the horizontal centerline of the medium a distance sufficient to position the projection horizon at approximately the eye level of the viewer (Fig. 1, ref.# 36); and the recording lens and projection lens being matched so that the field of view of the projected scene

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matches the field of view of the recorded scene, to the extent the projected scene is visible on the curved surface (inherent to minimize perspective distortion of image as seen by the viewer (abstract))."

Regarding claim 26, Dykes discloses "wherein the curved screen extends down at least 60 degrees below the eye of the viewer." (Fig. 3, ref.# 86)

Regarding claim 27, Dykes discloses "wherein the curved screen extends down at least 75 degrees below the eye of the viewer." (Fig. 3, ref.# 86)

Regarding claim 29, Dykes discloses "a curved screen extending substantially below the viewer, wherein a greater portion of the curved screen extends below the eye of the viewer than above." (Fig. 3, ref.# 86)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (US 5,845,434) in view of Heilig (US 3,469,837).

Hayashi (US 5,845,434) discloses all the structure set forth in the claims except for the structure of the curved screen wherein "...at least two panels forming a portion of the curved surface, each panel having a top edge and a bottom edge, the top edge of each panel being nearer to the uppermost portion of the curved surface than the bottom edge of

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the same panel; each of the at least two panels having an interior surface facing a viewer at the viewer location; the interior surface of each of the at least two panels having a reflective portion; the upper edge of one of the least two panels being positioned to overlap at least a portion of the bottom edge and at least a portion of the interior surface of another one of the at least two panels, defining an overlapping portion.” However, the use of a curved screen made up of individual panels that overlap each other and have a reflective surface is routine in the art as is evident from the teaching of Heilig (US 3,469,837) (see Figures 13-16 and column 4, lines 39-75). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hayashi (US 5,845,434) to include a screen wherein “...at least two panels forming a portion of the curved surface, each panel having a top edge and a bottom edge, the top edge of each panel being nearer to the uppermost portion of the curved surface than the bottom edge of the same panel; each of the at least two panels having an interior surface facing a viewer at the viewer location; the interior surface of each of the at least two panels having a reflective portion; the upper edge of one of the least two panels being positioned to overlap at least a portion of the bottom edge and at least a portion of the interior surface of another one of the at least two panels, defining an overlapping portion.” The ordinary artisan would have been motivated to modify Hayashi (US 5,845,434) in the manner described above to (1) maintain polarization, (2) minimize hotspots, and (3) maximize utilization of available light energy as described by Heilig (US 3,469,837) in column 5, lines 15-18.

Allowable Subject Matter

7. Claims 1-10 and 28 are allowed.
8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose a projection system for projecting an image on a curved screen that includes a projector that is located at a position above the viewing location, the axial centerline of the lens of the projector is positioned away from the centerline of projection sufficient to place the horizontal on the curved screen at approximately the eye level of a viewer, and wherein a greater portion of the curved screen extends below the eye of the viewer than above.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Fuller whose telephone number is (703) 306-5641. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams, can be reached on (703) 308-2847.

Rodney Fuller
Primary Examiner

A handwritten signature in black ink, appearing to read "R. Fuller", is written over the printed name of the examiner.

May 29, 2003